Supporting Information for

Solvent-Free Synthesis of Ultrafine Tungsten Carbide Nanoparticles Decorated Carbon Nanosheets for Microwave Absorption

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Supplementary Figures

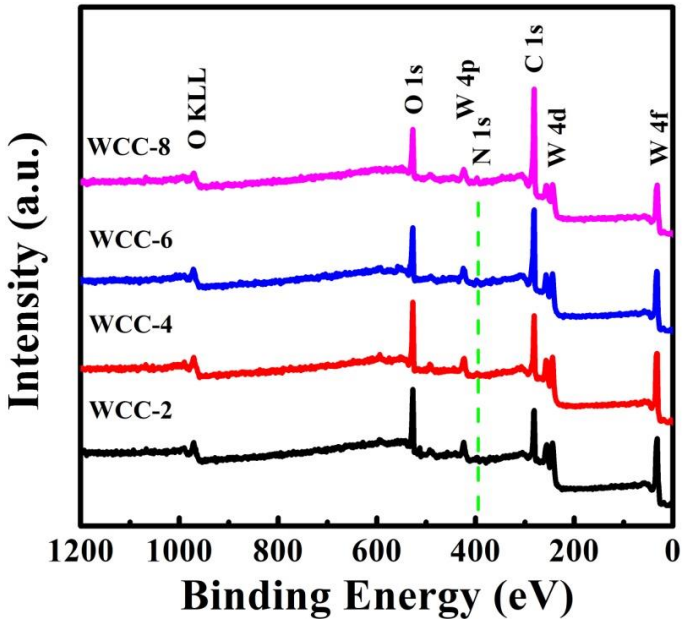

Fig. S1 Survey XPS spectra of different tungsten carbide/carbon composites

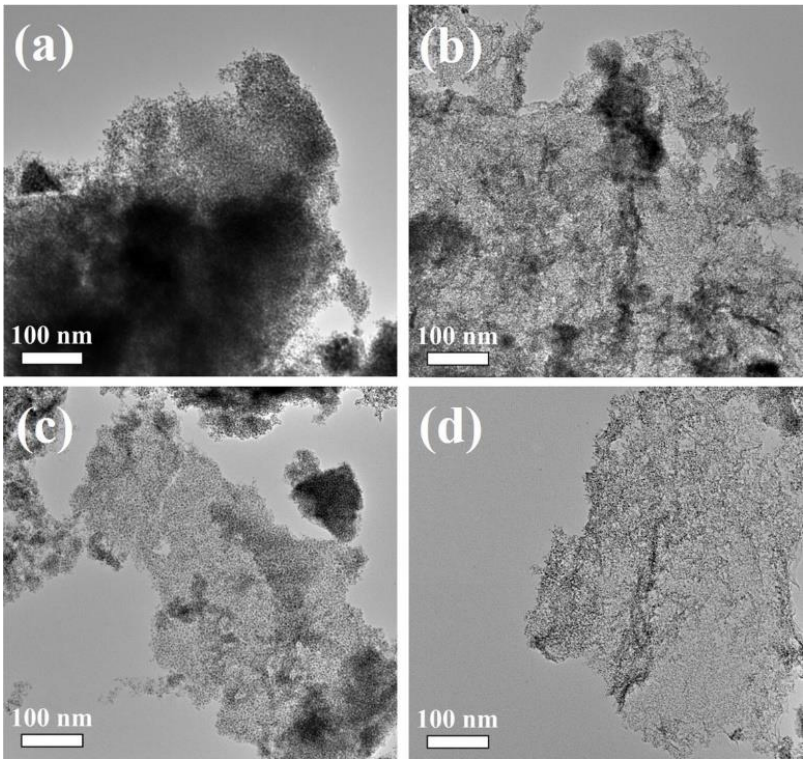

Fig. S2 Low-magnification TEM images of **a** WCC-2, **b** WCC-4, **c** WCC-6, and **d** WCC-8

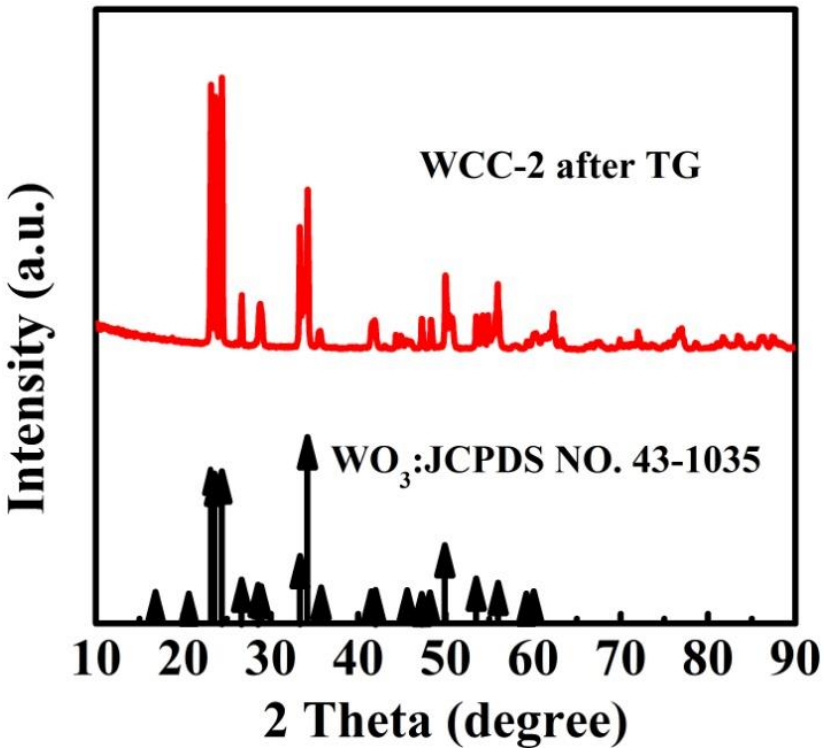

Fig. S3 XRD pattern of the final product of WCC-2 after TG measurement

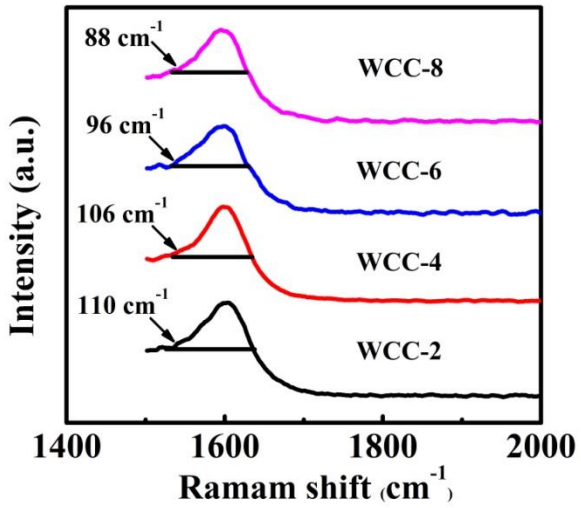

Fig. S4 The local amplification of G band in Raman spectra of different tungsten carbide/carbon composites

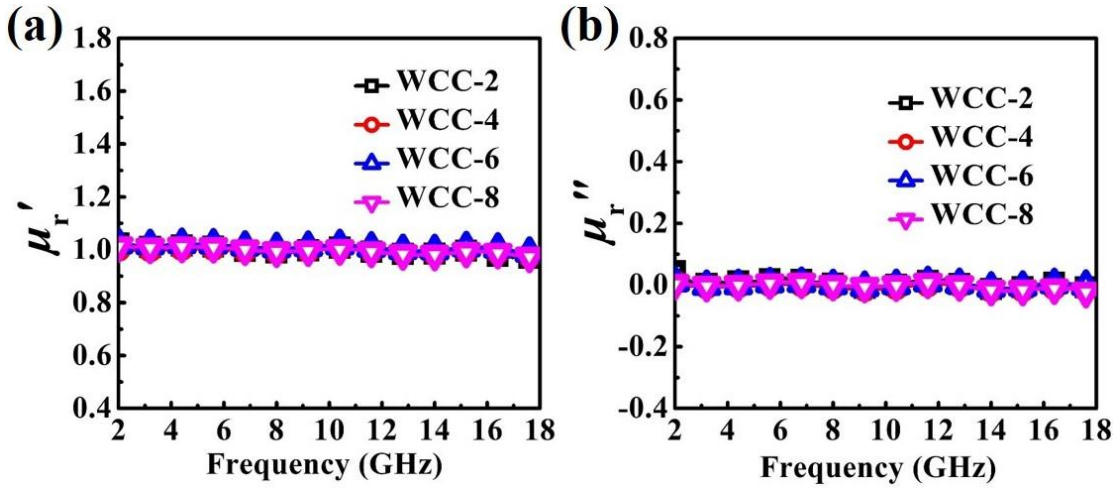

Fig. S5 a Real parts and **b** imaginary parts of relative complex permeability of different tungsten carbide/carbon composites

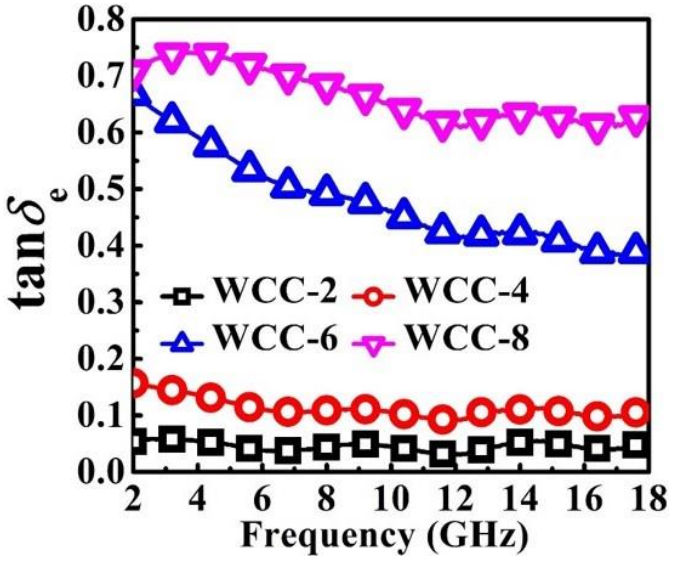

Fig. S6 Dielectric loss tangents of different tungsten carbide/carbon composites

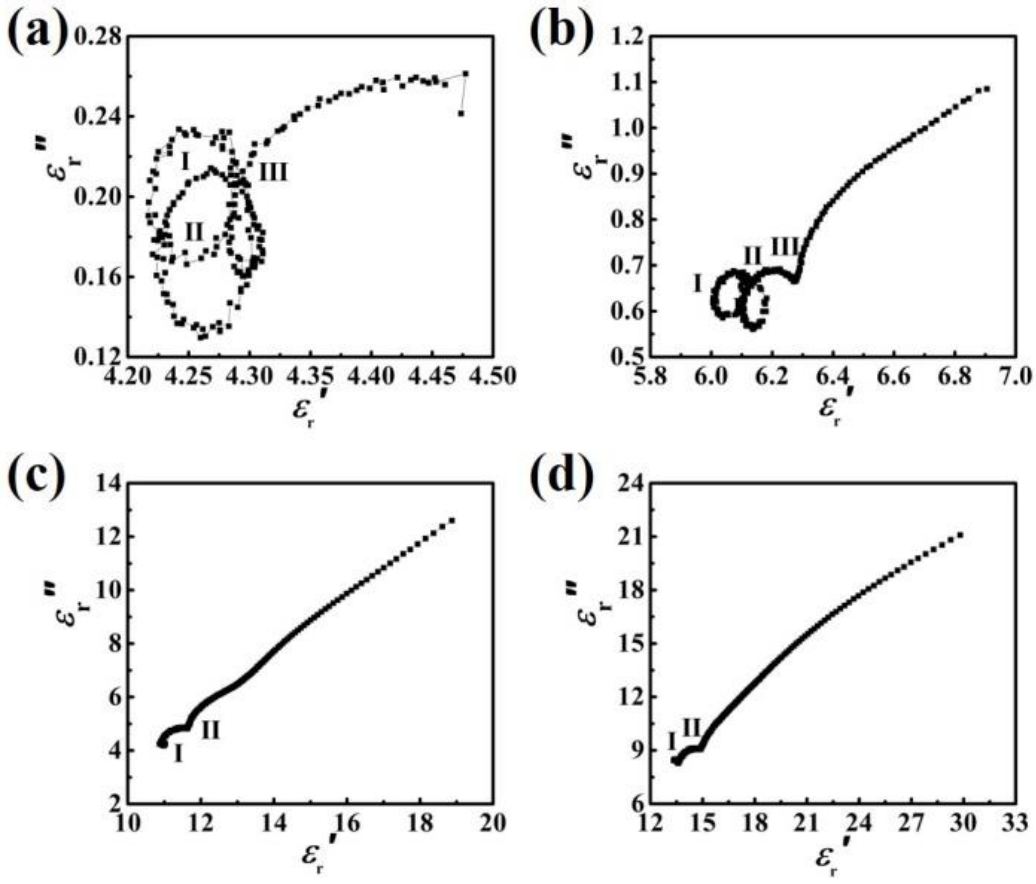

Fig. S7 The curves of ε_r'' *vs.* ε_r' (Cole–Cole semicircles) of **a** WCC-2, **b** WCC-4, **c** WCC-6, and **d** WCC-8

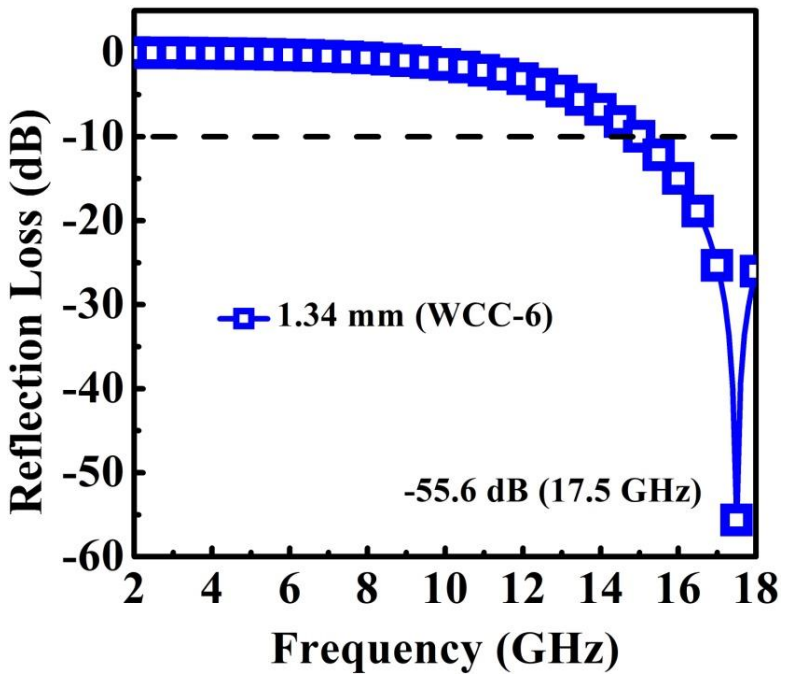

Fig. S8 RL curve of WCC-6 with the thickness of 1.34 mm

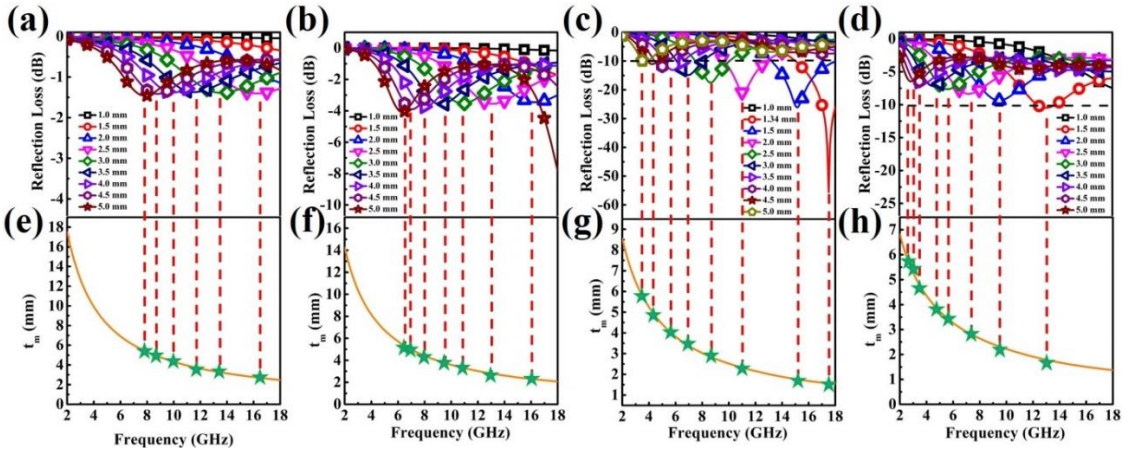

Fig. S9 RL curves and dependence of matching thickness (t_m) on matching frequency (f_m) of **a, e** WCC-2, **b, f** WCC-4, **c, g** WCC-6, and **d, h** WCC-8.

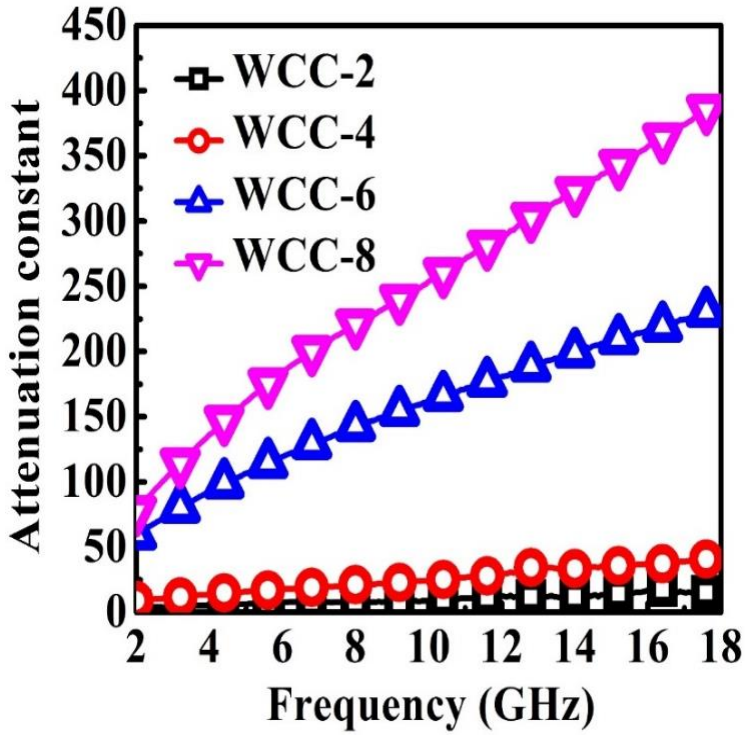

Fig. S10 Frequency-dependent attenuation constants (α) of different tungsten carbide/carbon composites

The values of α can be calculated by the following equation:

$$\alpha = \frac{\sqrt{2}\pi f}{c}\sqrt{(\mu_r''\varepsilon_r'' - \mu_r'\varepsilon_r') + \sqrt{(\mu_r''\varepsilon_r'' - \mu_r'\varepsilon_r')^2 + (\mu_r'\varepsilon_r'' + \mu_r''\varepsilon_r')^2}}$$

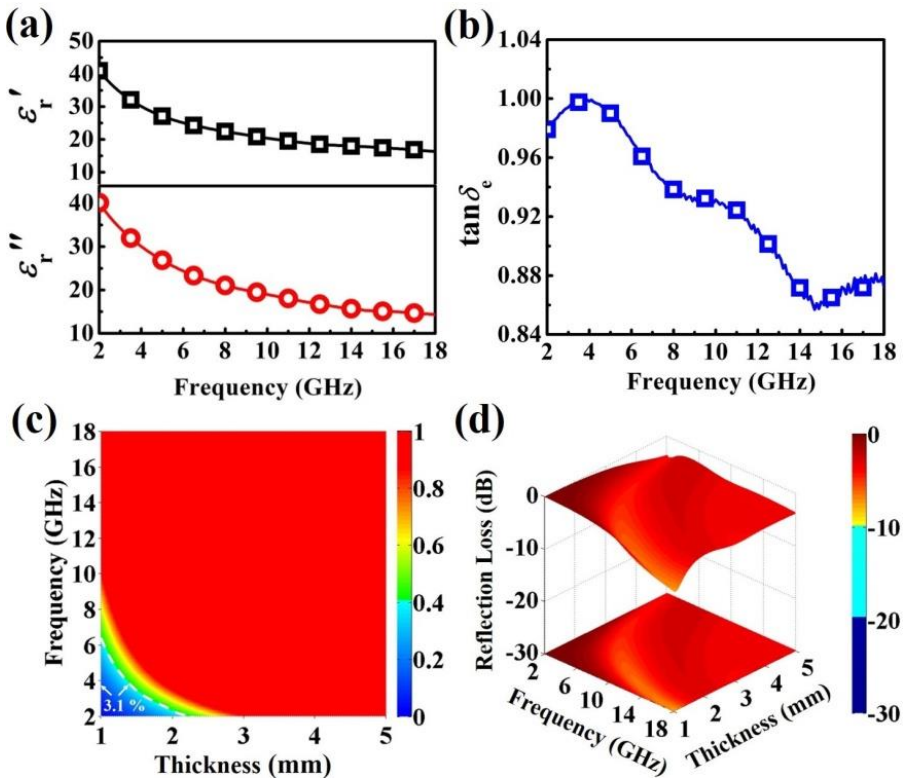

Fig. S11 a Relative complex permittivity, **b** dielectric loss tangent, **c** delta map, and **d** RL map of WCC-10